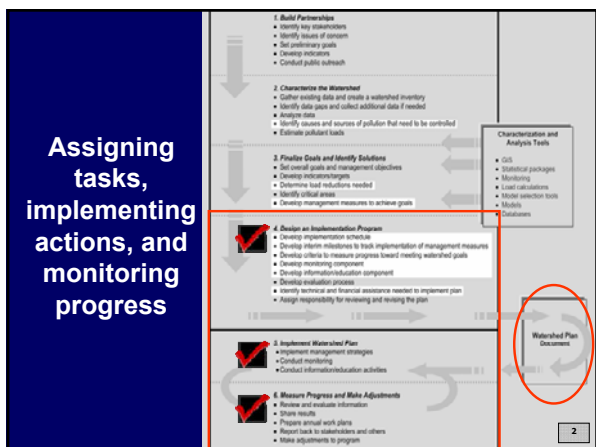




Tools to Help Implement the Watershed Plan



Selecting & Implementing BMPs

- Integrate assessment results across objectives
- Example factors to consider:
 - ◆ Highest threats to achieving objectives
 - ◆ Regulatory requirements
 - ◆ Where are existing management regulations, programs, policies, practices falling short
 - ◆ Stakeholder preferences



Implementation Plan

- Public outreach, information & education
- Public involvement
- Support for:
 - ◆ BMPs
 - ◆ \$\$\$\$
 - ◆ Technical Assistance
- Project schedule
- Project costs



Asking the right questions...

- Who can help implement the BMPs or controls?
 - ◆ Agencies, businesses, non-profits, citizens, producers
- How can they be implemented?
 - ◆ What has been done in the past?
 - ◆ How well did it work?
 - ◆ Can we do it (or adapt it) here?
- When can we get started?
 - ◆ Reasonable short-term actions
 - ◆ Long-term or major actions
- How do we know if it's working?
 - ◆ And what do we do if it's not?



Technical and Financial Resources Needed

- Satisfies element "d"
 - ◆ Estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement this plan.
- Include:
 - ◆ Administrative/management services (salaries, supplies, office space)
 - ◆ I/E efforts
 - ◆ BMP costs including O&M
 - ◆ Monitoring and data mgmt costs
 - ◆ Coordinate with other authorities



Identify sources of support

- Funding sources
 - ◆ Grants, contracts, donations
 - ◆ Private foundations
- Sources of technical assistance
 - ◆ Internal and external
- Regulatory or other authority
 - ◆ Tribal codes, onsite regs
 - ◆ WHPP, SWPP, etc.
- Matching support sources
 - ◆ Be creative!



Estimating costs

- Categorize/classify costs
 - ◆ According to project phases
 - ◆ By stressor targeted
 - ◆ By BMP type, or other scheme
- Use estimated costs or averages
 - ◆ Appropriate for area/region
 - ◆ Based on past actual costs if available
- Include full costing
 - ◆ Design, installation, maintenance, site access, etc



Estimating Costs

BMP cost information

- <http://www.lacity.org/SAN/wpd/pages/publctns.htm>
- http://www.swrcb.ca.gov/stormwtr/post_construction.html
- <http://www.georgiastormwater.com>
- <http://www.agecon.ag.ohio-state.edu/people/sohngen.1/bmp/bmpinfo.htm>
- http://www.cwp.org/stormwater_mgt.htm
- <http://www.cffm.umn.edu/landeconomics/readings/forestcosts.pdf>
- <http://tti.tamu.edu/product/catalog/reports/1837-1.pdf>

Funding Sources on the Web

- Catalog of Federal Domestic Assistance (www.cfda.gov)
- Federal funding for watersheds (www.cfpub.epa.gov/fedfund)
- Directory of Funding Sources for Grassroots River and Watershed Groups (www.rivernetwork.org)

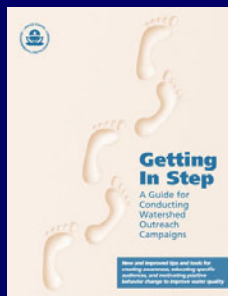


Why an information/education component?

- Communication helps each step proceed more smoothly
- Dialogue can identify unknown resources/problems
- Promotion of the process builds understanding, support
- Watershed work requires an inclusive, transparent, cooperative, methodical approach
- Motivation is needed where adoption of BMPs is voluntary



www.watershedtraining.net



www.epa.gov/owow/watershed/outreach/documents

Developing info/ed activities

- Define overall goal and objectives
- Identify & characterize target audience
- Create message(s) for target audience
- Package the messages for distribution
- Distribute messages to the audiences
- Evaluate the info/education effort



Setting times and targets

- Develop implementation schedule
 - ◆ Think about short term (< 2 yrs) and long-term (> 5 yrs) goals
- Determine how you will measure success
 - ◆ What indicators are linked to the problems you're dealing with?
- Set interim milestones
 - ◆ What helps to show progress?
 - ◆ Can be both water quality & programmatic indicators



How do we measure progress?

- With indicators that:
 - ◆ Characterize the watershed
 - ◆ Define and/or refine your understanding of the problem(s), such as WQ criteria violations, etc.
 - ◆ Show changes in targeted water quality or habitat conditions
 - ◆ Efficiently provide effective management information



Indicators & targets for management objectives

INDICATOR = measurable parameter used to evaluate relationship between pollutant sources and environmental conditions

TARGET = value of indicator that is set as the goal to achieve



Environmental and Social Indicators

- Environmental Indicators:
 - ◆ # of occurrences of algal blooms
 - ◆ miles of streambank restored or fenced off
 - ◆ % increase in "healthy-stream" critters
 - ◆ Increase in DO
 - ◆ # of waterbodies restored
- Social Indicators:
 - ◆ # of calls reporting illegal dumping
 - ◆ # of people surveyed with increased knowledge of watershed issues
 - ◆ # of people who report picking up pet waste
 - ◆ % increase in households who had their septic tanks inspected

Other types of indicators

- Administrative/programmatic indicators
 - ◆ # of BMPs installed
 - ◆ # of newspaper stories printed
 - ◆ # of people educated/trained
 - ◆ # of public meetings held
 - ◆ # of volunteers attending activities
 - ◆ # of storm drains stenciled



Indicators & targets: short/long term

Worksheet 12-2

Developing Criteria to Measure Progress in Meeting Water Quality Goals

[Note: Complete one worksheet for each management objective identified.]

Management Objective: Reduce nutrient inputs into Cane Creek by 20 percent				
Indicators to Measure Progress	Target Value or Goal	Interim Targets		
		Short-term	Medium-term	Long-term
P load	44 t/yr	52 t/yr	49 t/yr	44 t/yr
# of nuisance algae blooms	0	2	1	0
transparency	5.5 m	4.1 m	4.9 m	5.5 m
frequency of taste and odor problems in water supply	0	1	1	0
hypolimnetic DO	5.0 mg/L	2.5 mg/L	4.0 mg/L	5.0 mg/L

Monitoring & adaptive management

- Interim measurable milestones
 - ◆ Load reduction targets
- Monitoring component
 - ◆ Who will help with monitoring?
 - ◆ Measuring your chosen indicators
- Develop evaluation framework
 - ◆ Indicator targets vs. collected data



Example milestones

- Short-term (<1 yr)
 - ◆ Achieve 5% reduction in sediment load on 1,000 acres of ag land in the Cross Creek watershed by implementing rotational grazing practices.
- Mid-term (1-4 yrs)
 - ◆ Reduce streambank erosion and sediment loading rate by 15% by reestablishing vegetation along 3,600 feet of Cross Creek.
- Long-term (>5 yrs)
 - ◆ Restore upper reaches of 6 tributaries and create buffer easements along 15,000 ft of Cross Creek feeder streams.



Planning to git 'r done!

Planning to git `r done!

Worksheet 12-1								
Sample Implementation Plan Matrix								
Watershed Goals								
Goal 1: Restore water quality to meet designated uses for fishing								
Objective 1: Reduce sedimentation by 20 percent								
Tasks for G1/O1	Respon. Party	Total Costs	Funding Mechanism	Indicators	Milestones			Remaining
					Short < 1 yr	Med < 3 yr	Long < 7 yr	
Task 1 Seek donation of conservation easements from property owners along Baron Creek	Local land trust	\$0		# acres donated	2	7	10	10
IE Activities Task 1 Hold informational workshop with property owners Develop brochures on how to donate easements	Local land trust	\$3,000	Sect. 319 funding	# workshops held # participants # requests for assistance	3 40 2	3 45 4		0
Task 2 Purchase greenway alongside Baron Creek	County park district	\$2,000/ mile	County general funds	# miles purchased	2	4	7	5
IE Activities Task 2 None								

Table 8-2. Comparison of example parameters in a hypothetical watershed plan and 319 work plan

Parameter	Late Lehmann Watershed Management Plan	319 Work Plan #1
Period	2003-2013	2003 - 2006
Geographic scope	180,000 acres	24,000 acres
Goal statement	Improve watershed conditions to support a sustainable fisheries	Reduce sediment loadings from priority subwatershed XY
Example objectives and key elements	<ul style="list-style-type: none"> • To increase the index of biological integrity from 30 to 75 • Identification of causes and sources of sediment • Identification of land reduction expected • Identification of management practices needed • Identification of critical areas 	<ul style="list-style-type: none"> • Treat 5,000 acres of cropland with crop residue management (CRM) practices • Six terraces to treat 1,200 acres • Five buffer strips established for a total of 8,000 feet
Implementation	<ul style="list-style-type: none"> • CRM: 2,000 acres of row crop/year into CRM • Terraces: 4 fields/year, 40 fields total • Buffers: restore 1 to 1.5 miles of riparian area/year – 8 miles total • Field buffers: 100 fields total 	<ul style="list-style-type: none"> • Develop training materials on CRM in year 1 • Hold 2 workshop each in years 2 and 3 • 2 terraces/year • 1 buffer strip in first year and 2 each in years 2 and 3
Costs	<ul style="list-style-type: none"> \$4,020,000 over 10 years \$800,000 for information and education (ISE) \$600,000 for monitoring and reporting \$1,980,000 for buffers (16,000 acres at \$110 / acre) \$140,000 for 40 terraces \$500,000 for CRM 	<ul style="list-style-type: none"> \$250,000 over 3 years \$50,000 to prepare training materials and give 5 workshops on CRM \$160,000 for BMP cost sharing \$40,000 for monitoring and reporting
Schedule	<ul style="list-style-type: none"> • Begin slowly and accelerate (build on successes) • Establish interim milestones • Cropland: 2006 – reduce soils erosion by 80,000 tons/year 	<ul style="list-style-type: none"> • See above • Annual progress reports

Who will implement the plan?

Structure can vary widely

- ◆ **Public agencies**
 - ◆ Cities, counties
 - ◆ Water or wastewater utility
 - ◆ State agency or river authority
 - ◆ Basin planning teams
- ◆ **Private entities**
 - ◆ Watershed association
 - ◆ Ag producer council



Any well-organized single or multiple entity approach can coordinate and document the effort

Coordinate with other water resource and land use programs

- Section 303, Water Quality Standards, TMDLs
- Section 319, NPS Program
- Section 402, KPDES Permits, CAFOS, Stormwater I & II
- Source Water Protection Plans – local water utilities
- Wetlands Protection Programs
- EQIP, CRP, BLM, USFS, USFWS
- More...



Form partnerships

- Benefits of partnerships
- Coordinated/leveraged monitoring
- Integrated assessment and problem ID
- Joint problem targeting/prioritization
- Focused goal-setting
- More help with BMPs
- Better long-term mgmt
- Buy-in & ownership



During implementation, remember:

- Plans are guides, not straitjackets
- Be aware of unforeseen opportunities
- Picking the low-hanging fruit is easy, but it helps to build a sense of progress & momentum
- If possible, work quietly for as long as you can on the most contentious issues



Finally...Make Adjustments

- Monitor water quality and BMPs
 - ◆ Compare results to goals
 - ◆ Are you making progress?
 - ◆ Are you meeting your goals?
- If you aren't meeting implementation milestones
- If you aren't making progress toward reducing pollutant loads....



Share Results



- Transparency builds trust and confidence in the outcome
- Show them it is making a difference
- Report cards, fact sheets, meetings, etc.

The Bottom Line:

- Load reduction *estimates* are critical for nonpoint sources
- Preliminary info & estimates can be modified & corrected over time, if necessary
- NPS 319 - funded management measures should proceed only after reasonable estimates are made of how far they will go towards achieving water quality targets.